

# 1.0 Introduction

## 1.1 Purpose

The purpose of this document is to define the procedure to initiate and manage Tecknit welding and to ensure that the welding is done properly without damaging the lead shield component of a validated radiation enclosure.

## 1.2 Scope

This procedure covers welding by Tecknit, in support of miscellaneous work, using a Shielding Service Request Order (SSRO) on validated radiation enclosures. Included in this procedure is the requirement to perform radiation survey at the location of the welds to ensure shielding integrity.

## 1.3 Applicability

This procedure is applicable to Floor Coordinators initiating and processing SSROs involving welding on validated enclosures at the Experiment Hall. Currently, welding is performed only by the original contractor Tecknit Shielding, Inc. This procedure also addresses the Floor Coordinators' responsibilities in managing the work, submitting an online Work Order Request (WR), administering configuration controls and documentation.

## 1.4 References

Tecknit Safety Plan (available upon request from the Tecknit foreman or SSRO Technical Rep.)

Configuration Control Policy

Configuration Control Work Permit (CCWP)

Shielding Service Request Order (SSRO) form and procedure

## 1.5 Type of Procedure

This document outlines the steps needed to ensure that welding does not compromise the shielding integrity of an enclosure.

## 2.0 Background

Radiation Enclosures (hutches) installed on the Experiment Hall floor at the APS are radiation shield verified, placed under configuration control and annually re-verified. Occasionally, it is necessary to request welding work from Tecknit to support beamline installations. Many of the welding requests are for the installation of utilities, cable and equipment supports. Most of the hutches were installed by Tecknit Shielding, Inc, the main contractor for APS shielding enclosures. Tecknit provides the welding requests under a blanket purchase agreement for miscellaneous shielding service request order (SSRO). Tecknit is familiar with the welding requirements needed to ensure that local heating during welding does not melt the lead shield component sandwiched in between the steel plates of the enclosure panels. Each weld is verified with a radiation survey of the surrounding area for shielding integrity.

## 3.0 Procedure

### 3.1 Fill out SSRO

Define job description noting weld locations and submit to the SSRO Technical Representative to process. The SSRO Tech Rep. and the Tecknit foreman will further define the details of the intended work and schedule the service.

### 3.2 Submit and get approval for online Work Order Request

Verify and coordinate start date with beamline schedule. Notify Tecknit once WR and SSRO are approved.

### 3.3 Tecknit start of work

Generate Configuration Control Work Permit (CCWP) from the approved WR, process and post on the display case located at the end of beamline. Make sure the correct validation signature boxes are checked, especially radiation survey requirement. Note locations of welds if it is not already printed. The Configuration Control policy is to be followed in all cases. Remove APS Enable from the

enclosure having the welding work. Allow Tecknit to proceed after CCWP is posted.

### **3.4 Tecknit completion of work**

Visually verify the welds. Contact the SSRO Tech Rep. in the unlikely event that there are signs of abnormal heating, such as melting, holes or continuous welds which are 2 or more inches in length.

### **3.5 Radiation Survey**

Arrange for radiation survey. Surveys are required for all welding work on enclosures. The welds and its surrounding areas will be surveyed. If radiation leak is detected, remove APS Enable and inform the APS Assigned Health Physicist.

### **3.6 Close out CCWP upon successful completion of radiation survey**

Document radiation survey on the CCWP and obtain required closeout signatures. Once all validation and closeout signatures are obtained, close and file CCWP.

### **3.7 Close SSRO and WR**

Change online WR status to “completed” and notify CCSM. Also notify SSRO Tech Rep that SSRO work is completed.

## **4.0 Forms and Documentation**

- Miscellaneous Shielding Service Request Order (SSRO)
- APS Work Request Online System
- Configuration Control Policy